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(54) **GAS BURNER AND DOMESTIC COOKING APPLIANCE**

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See application file for complete search history.

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(57) **ABSTRACT**

A gas burner for a household appliance includes a burner housing having a mixing chamber for mixing fuel gas with primary air, a gas nozzle accommodated in the burner housing and configured to inject the fuel gas into the mixing chamber, and an annular first primary air inlet provided between the gas nozzle and the mixing chamber for drawing in the primary air. The gas nozzle has a second primary air inlet which is guided through the nozzle for drawing in the primary air. The second primary air inlet is configured in a direction of flow of the primary air through the second primary air inlet to taper at least once and to widen out again.

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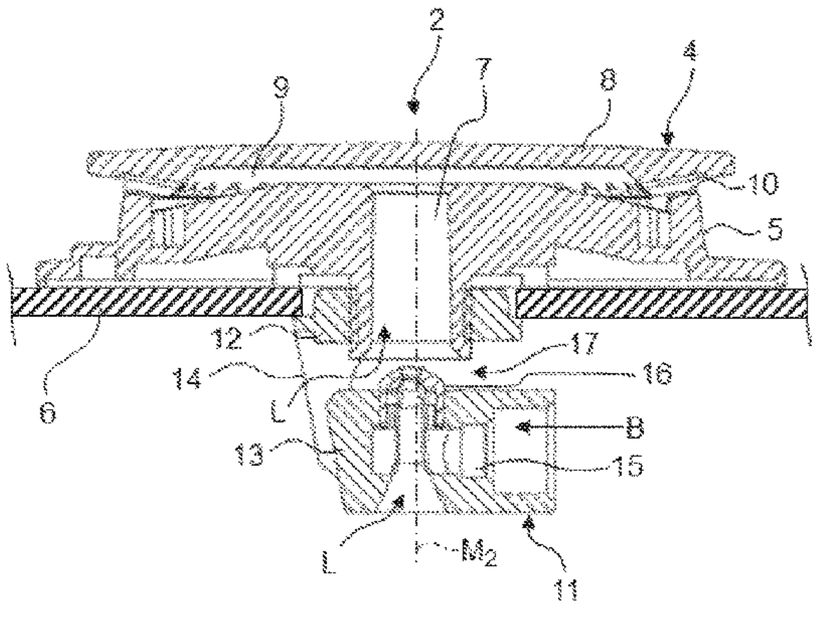

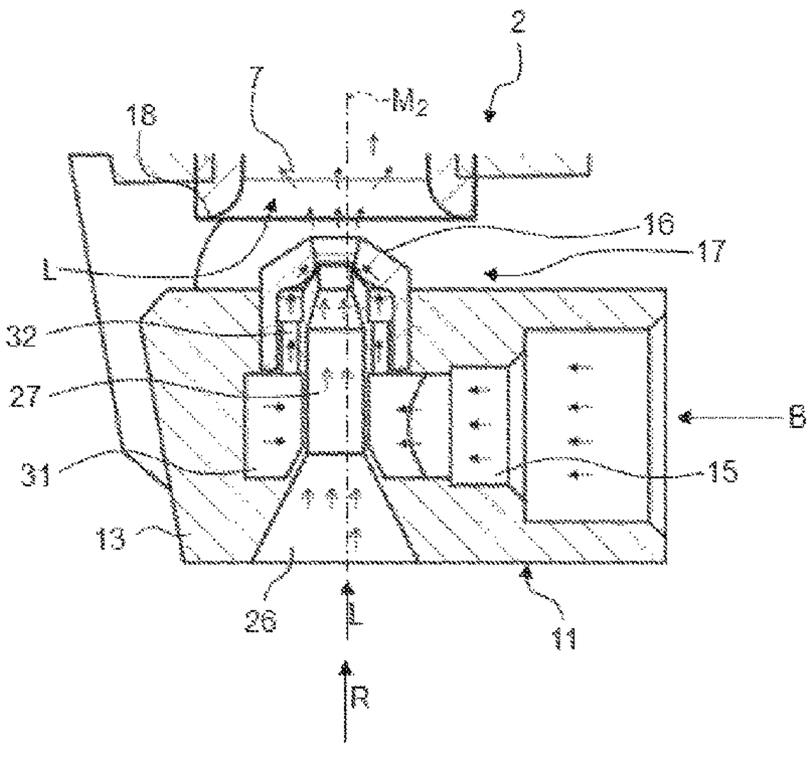

The gas nozzle has an annular fuel gas outlet opening which opens directly into the second primary air inlet.

18 Claims, 3 Drawing Sheets

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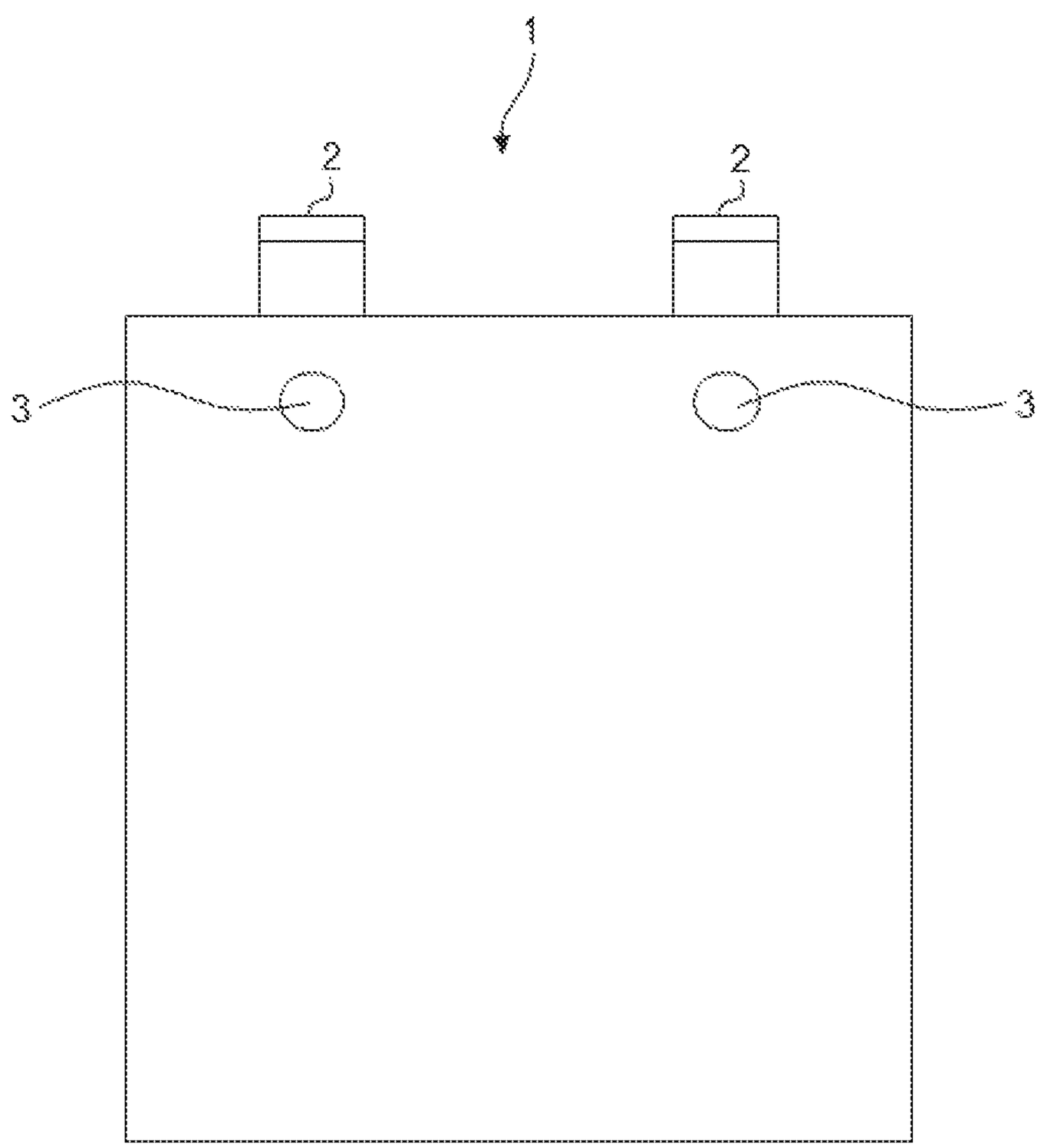

Fig. 1

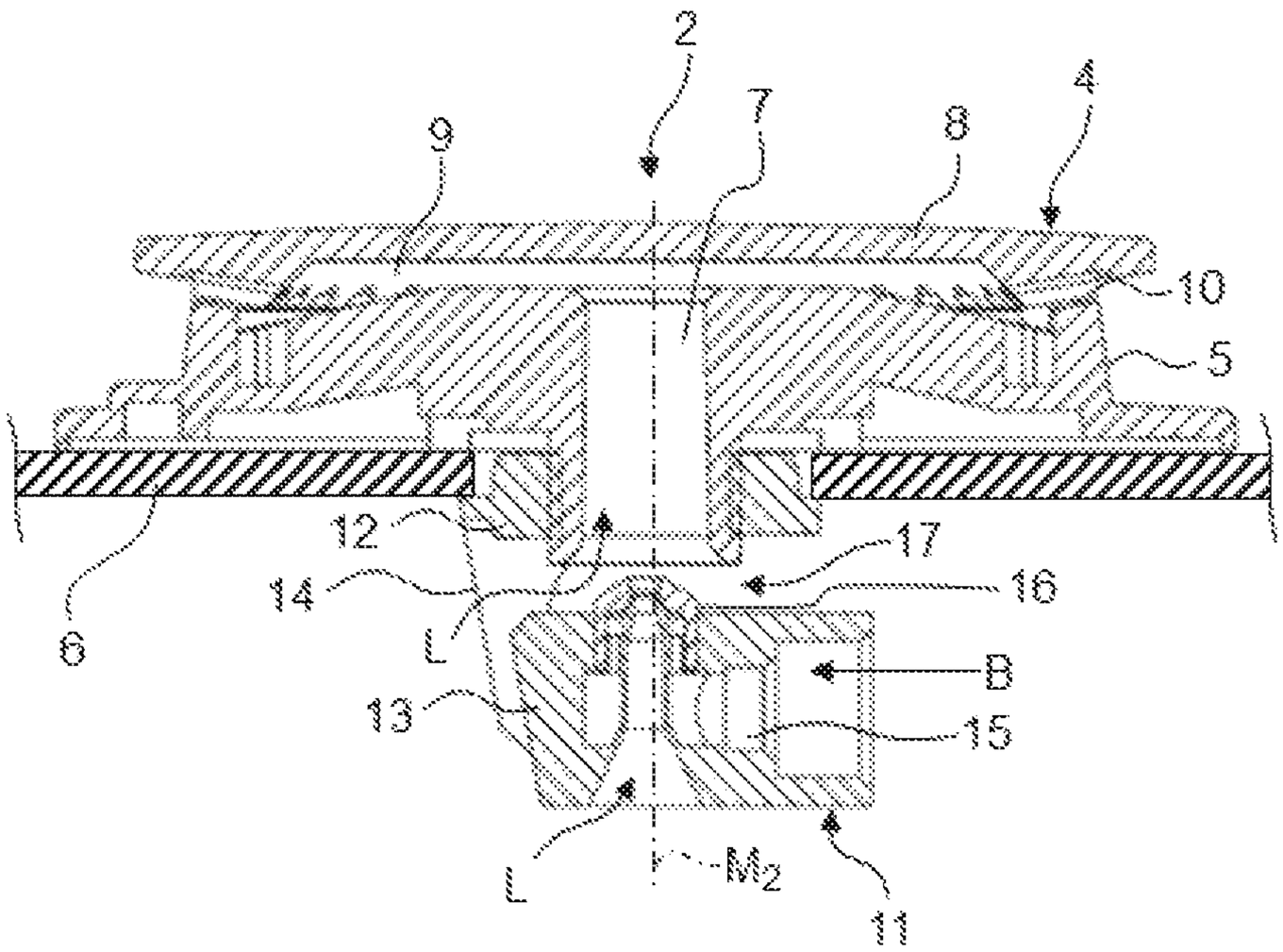
2
9
7
8
4
10
5
12
17
16
14
6
L
B
13
15
L
M_2
11

Fig. 2

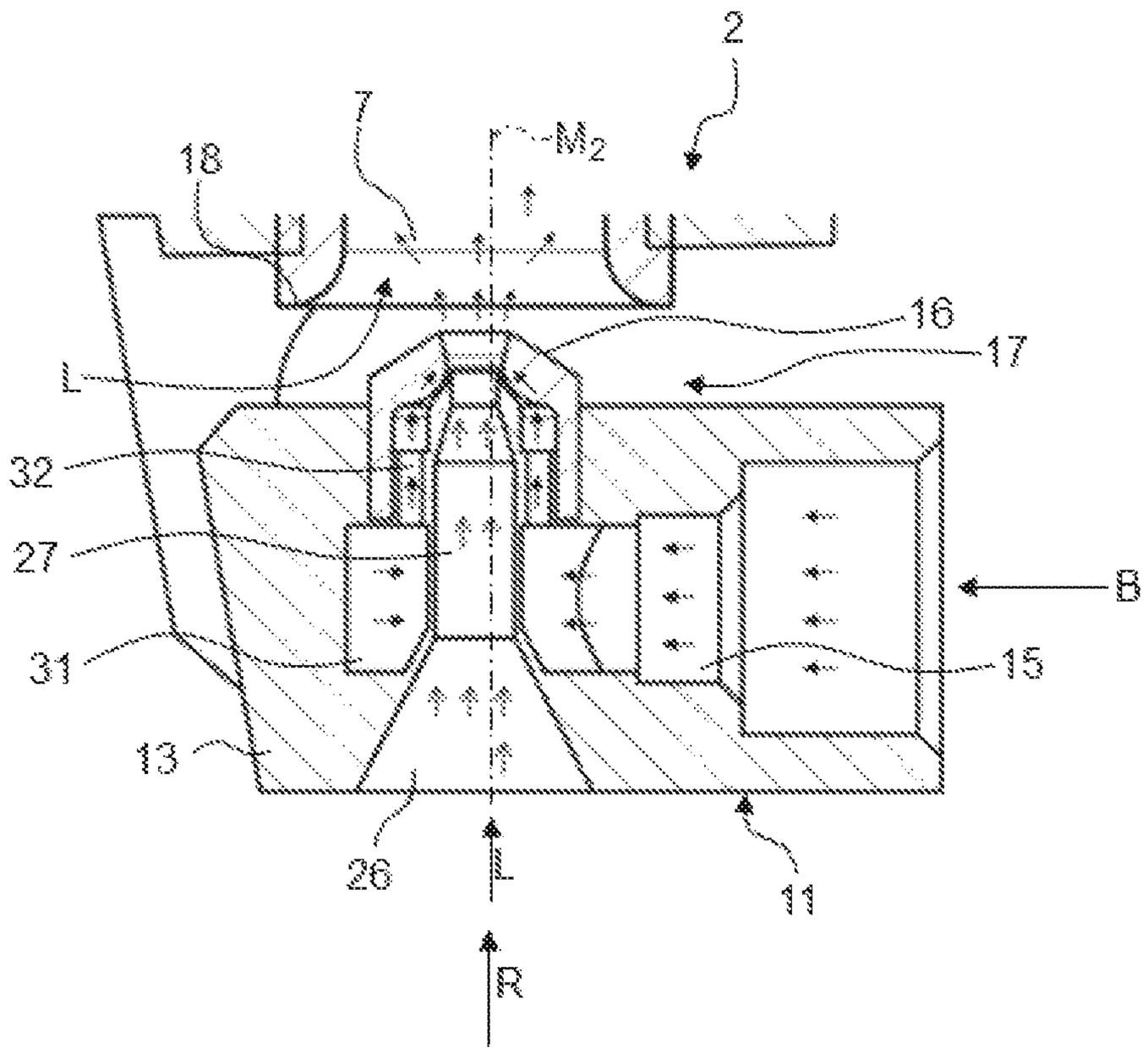
2
7
M_2
18
1
16
17
L
32
27
B
31
15
13
26
L
11
R

Fig. 3

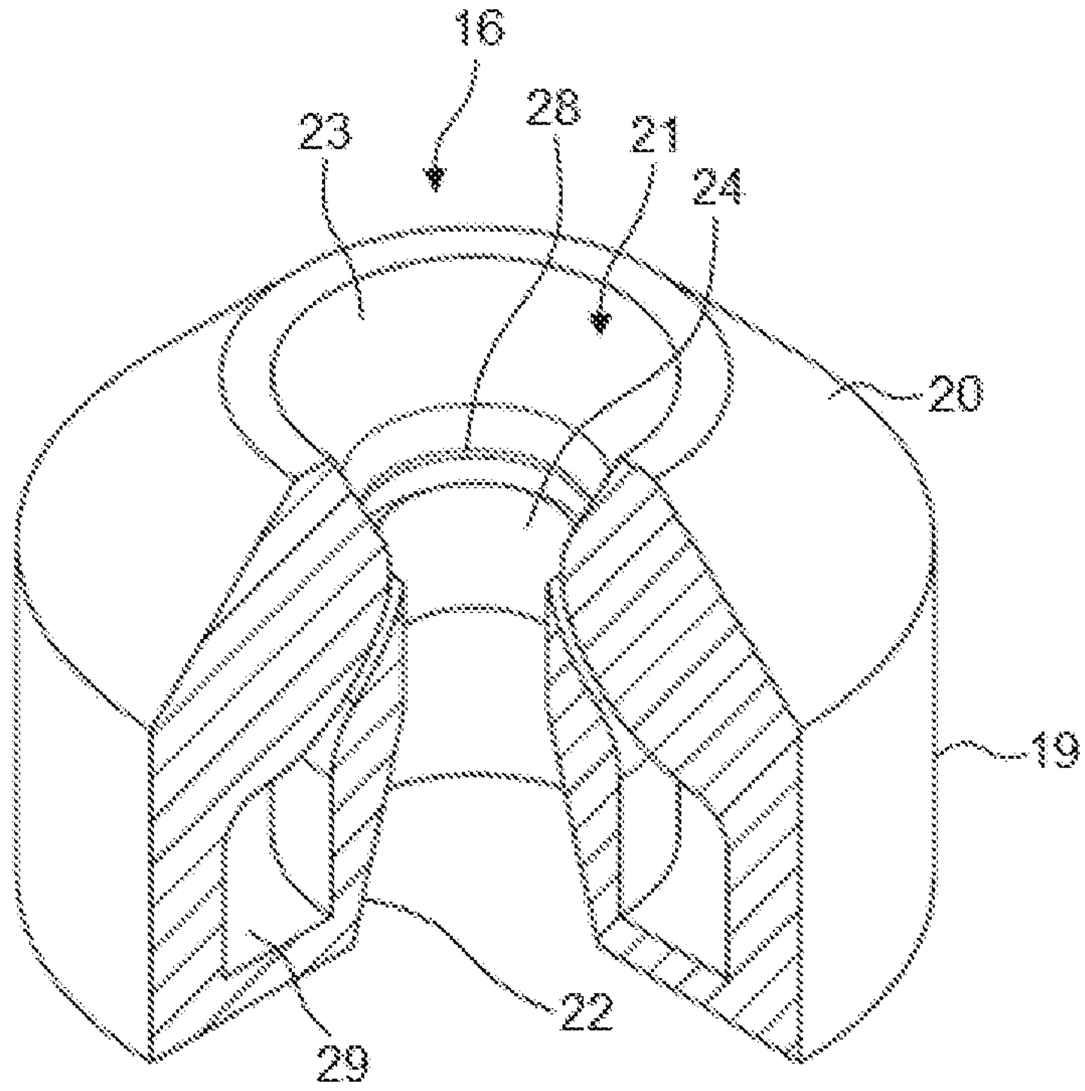

Fig. 4

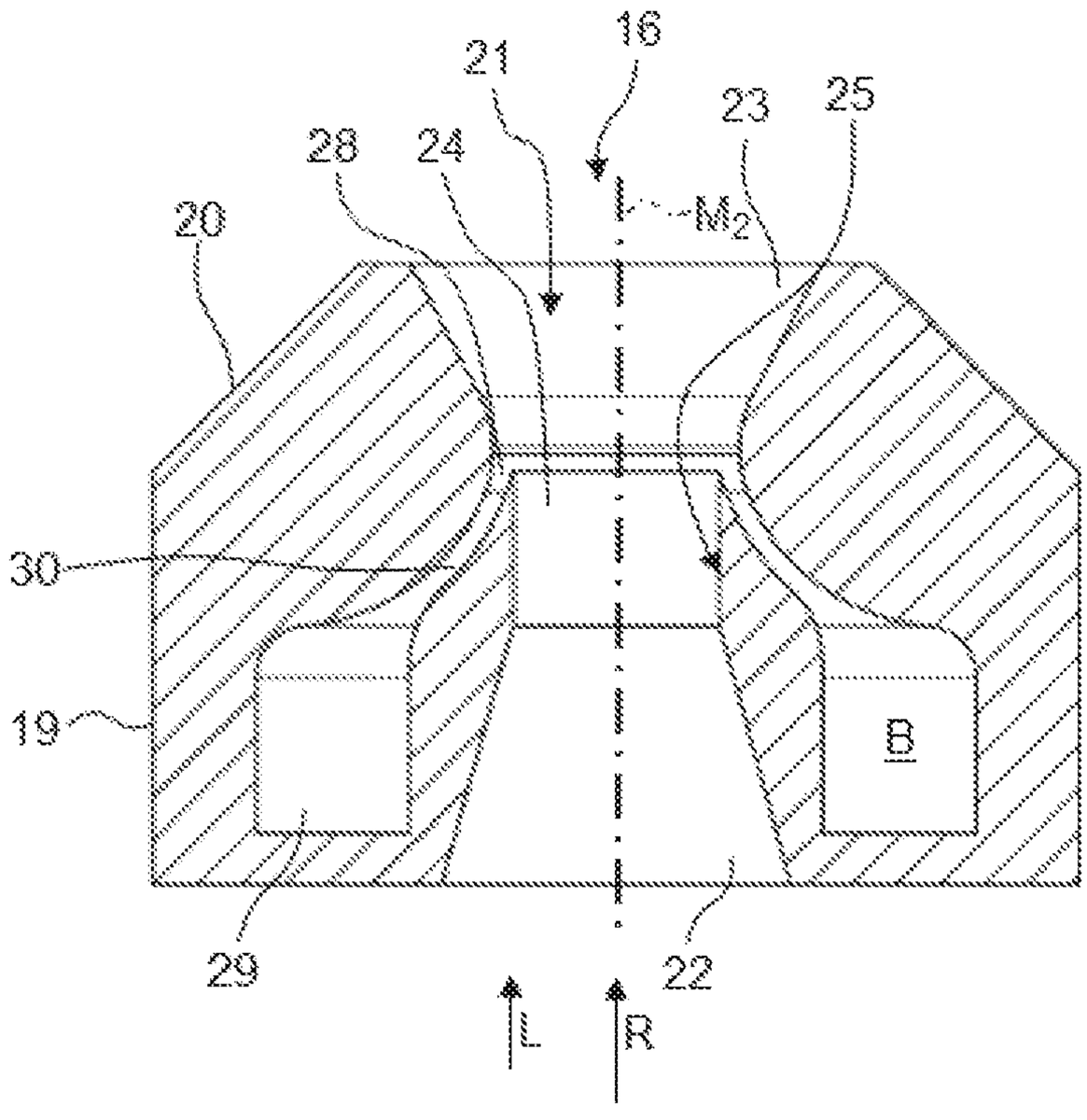

Fig. 5

GAS BURNER AND DOMESTIC COOKING APPLIANCE

CROSS-REFERENCES TO RELATED APPLICATIONS

This application is the U.S. National Stage of International Application No. PCT/IB2017/052788, filed May 12, 2017, which designated the United States and has been published as International Publication No. WO 2017/208095 A1 and which claims the priority of Spanish Patent Application, Serial No. P201630747, filed Jun. 3, 2016, pursuant to 35 U.S.C. 119(a)-(d).

BACKGROUND OF THE INVENTION

The present invention relates to a gas burner for a household cooking appliance and to a household cooking appliance with such a gas burner.

Gas burners for household cooking appliances comprise a lower burner part, in the middle of which a mixing chamber is provided, as well as a nozzle holder, which has a gas nozzle for injecting fuel gas into the mixing chamber. During injection of fuel gas into the mixing chamber primary air is drawn in at the side between the gas nozzle and a lower edge of the mixing chamber and mixed with the fuel gas.

BRIEF SUMMARY OF THE INVENTION

Against this background, the object of the present invention consists of making available an enhanced gas burner.

Accordingly a gas burner for a household appliance is proposed. The gas burner comprises a burner housing, which has a mixing chamber for mixing of fuel gas with primary air, and a gas nozzle accommodated in the burner housing for injecting the fuel gas into the mixing chamber, wherein an annular first primary air inlet to draw in primary air is provided between the housing and the mixing chamber, wherein the gas nozzle has a second primary air inlet guided through said nozzle to draw in primary air, wherein the second primary air inlet, in a direction of flow of the primary air through the second primary air inlet, tapers at least once and widens out again and wherein the gas nozzle has an annular fuel gas outlet opening, which opens directly into the second primary air inlet.

An annular fuel gas outlet opening is to be understood as the fuel gas outlet opening running completely around a central axis or axis of symmetry of the gas burner. The fuel gas outlet opening is in particular slot-shaped. The tapering of the second primary air inlet in the direction of flow of the primary air is to be understood as a cross-sectional surface of the second primary air inlet getting smaller. This means that a diameter of the second primary air inlet reduces in the direction of flow. The widening out of the second primary air inlet in the direction of flow is to be understood as a cross-sectional surface of the second primary air inlet getting larger. This means that a diameter of the second primary air inlet increases in the direction of flow.

The second primary air inlet thus has a choke point or constriction point before which the second primary air inlet tapers and after which the second primary air inlet widens out again. This enables an acceleration of the primary air in the gas nozzle to be achieved. Air, in particular the primary air already mentioned and secondary air, is necessary for burning the fuel gas. The gas nozzle injects the fuel gas into the mixing chamber that is in particular open at the bottom.

Through the injection of the fuel gas a Venturi effect is produced and the primary air is drawn in via the second primary air inlet through the gas nozzle and at the same time is drawn in past the side of the gas nozzle through the primary air inlet into the mixing chamber and mixed there with the fuel gas into a primary air/fuel gas mixture. By contrast the secondary air is the air that is necessary to the burn primary air/fuel gas mixture emerging from the gas burner.

The fact that the annular fuel gas outlet opening opens directly into the second primary air inlet means that a mixing of the fuel gas with the primary air can already take place in the gas nozzle. Furthermore, the fact that two primary air inlets are provided enables the amount of primary air drawn-in to be increased. This makes it possible to burn a larger amount of fuel gas. This enables the performance of the gas burner to be enhanced. The fact that the fuel gas and the primary air are already being mixed at least to some extent in the gas nozzle enables the height of the gas burner to be reduced by comparison with known gas burners. Through the better mixing of the primary air with the fuel gas the efficiency of the gas burner is increased and pollutant emissions are reduced. The gas burner can also be referred to as a household gas burner or as a household cooking appliance gas burner.

In accordance with one form of embodiment the fuel gas outlet opening breaks through an outer wall of the second primary air inlet.

In particular the fuel gas outlet opening opens at the side into the second primary air inlet. During injection of the fuel gas into the mixing chamber a Venturi effect is created at an inlet of the mixing chamber, whereby the primary air is drawn in and mixed with the fuel gas.

In accordance with a further form of embodiment the gas nozzle has an annular fuel gas distribution channel, wherein the fuel gas distribution channel tapers in the direction of the fuel gas outlet opening.

The fuel gas distribution channel is preferably embodied rotationally symmetrical to the central axis of the gas burner. This means that the fuel gas distribution channel runs completely around the central axis. A connecting channel is provided between the fuel gas outlet opening and the fuel gas distribution channel, which can be shaped in the form of a curve, in particular in the form of the arc of a circle. The fact that the fuel gas distribution channel tapers in the direction of the fuel gas outlet opening is to be understood as a cross-sectional surface of the fuel gas distribution channel being larger than a cross-sectional surface of the fuel gas outlet opening.

In accordance with a further form of embodiment the second primary air inlet has an inlet section tapering in a conical shape in the direction of flow of the primary air, an outlet section widening out in a conical shape in the direction of flow of the primary air, which faces towards the mixing chamber, and a cylindrical intermediate section arranged between the inlet section and the outlet section.

The intermediate section preferably has a circular cross-sectional surface. The intermediate section forms a constriction point or a throttle point of the second primary air inlet. The fact that the inlet section tapers in a conical shape in the direction of flow is to be understood as a cross-section or a cross-sectional surface respectively of the inlet section getting smaller in the direction of flow. The fact that the outlet section widens out in a conical shape in the direction of flow is to be understood as a cross-section or a cross-sectional surface respectively of the outlet section getting larger in the direction of flow.

In accordance with a further form of embodiment the fuel gas outlet opening opens into the second primary air inlet between the intermediate section and the outlet section.

In particular the fuel gas outlet opening opens into the second primary air inlet immediately after the intermediate section. This means that the fuel gas is injected into said inlet immediately after the constriction point of the second primary air inlet. This enables the fuel gas already to be mixed especially well with the primary air in the gas nozzle.

In accordance with a further form of embodiment the gas nozzle is embodied rotationally symmetrical to a central axis, wherein the second primary air inlet is likewise embodied rotationally symmetrical to the central axis.

Preferably the gas nozzle has a base body formed from a metal material. For example the gas nozzle can be made of brass. Also provided in the base body is a fuel gas distribution channel.

In accordance with a further form of embodiment the burner housing comprises a lower burner part, which has the mixing chamber, and a nozzle holder connected to the lower burner part, in which the gas nozzle is accommodated.

Furthermore the burner housing can have a burner cover laid on top of the lower burner part. The burner cover, the lower burner part and the nozzle holder can be embodied as die-cast aluminum parts for example. This enables the gas burner to be manufactured at low cost in large volumes. The gas burner is installed on a top sheet. The top sheet here can be arranged between the nozzle holder and the lower burner part. All gas burners of the household appliance are assigned to the top sheet. This means that the household appliance has only one top sheet, on which all gas burners are installed.

In accordance with a further form of embodiment the nozzle holder has a fuel gas channel for supplying the fuel gas to the gas nozzle.

A fuel gas distribution channel, into which the fuel gas channel opens, can furthermore be provided in the nozzle holder. The fuel gas distribution channel can be embodied as an annular channel and run all around the second primary air inlet. The fuel gas distribution channel of the nozzle holder can make a fluid connection with the fuel gas distribution channel of the gas nozzle via connecting channels.

In accordance with a further form of embodiment the second primary air inlet is embodied at least partly in the nozzle holder.

For example a drawing-in section tapering in a conical shape in the direction of flow of the primary air and also a supply section for supplying the primary air drawn in through the drawing-in section to the gas nozzle can be provided.

A household appliance, in particular a gas stove, with a gas burner of this type, is further proposed.

Preferably the household appliance has a plurality of such gas burners. A gas control valve or gas regulation valve can be assigned to each gas burner. The household appliance furthermore has a common top sheet, on which all gas burners are installed. The top sheet can be a glass ceramic sheet for example. The household appliance can be a free-standing appliance or a built-in appliance. Preferably the household appliance is a household gas stove. For example the household appliance can have four gas burners of this type. The gas regulation valve is clamped to a main gas line of the household appliance and has a fluid connection to the gas burner assigned to it via a gas supply line. Furthermore each gas burner can be assigned an ignition device, which can be integrated into the gas regulation valve, and an ignition element assigned to the gas burner, for example a spark ignition device.

Further possible implementations of the gas burner and/or of the household cooking appliance also comprise combinations of features or forms of embodiment not previously explicitly stated, described above or below in relation to the exemplary embodiments. In such cases the person skilled in the art will also add individual aspects as improvements or expansions to the respective basic form of the gas burner and/or of the household appliance.

BRIEF DESCRIPTION OF THE DRAWINGS

Further advantageous embodiments and aspects of the gas burner and/or of the household cooking appliance are the subject matter of the subclaims as well as the exemplary embodiments of the gas burner and/or of the household cooking appliance described below. The gas burner and/or of the household cooking appliance will be explained in greater detail below with reference to the enclosed figures.

FIG. **1** shows a schematic view of a form of embodiment of a household cooking appliance;

FIG. **2** shows a schematic sectional view of a form of embodiment of a gas burner for the household cooking appliance as depicted in FIG. **1**;

FIG. **3** shows a further schematic sectional view of the gas burner as depicted in FIG. **2**;

FIG. **4** shows a schematic perspective part sectional view of a form of embodiment of a gas nozzle for the gas burner as depicted in FIG. **2**; and

FIG. **5** shows a schematic sectional view of the gas nozzle as depicted in FIG. **4**.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS OF THE PRESENT INVENTION

Elements that are the same or that function in the same way have been labeled with the same reference characters, unless stated otherwise.

FIG. **1** shows a schematic view of a form of embodiment of a household cooking appliance **1**. The household cooking appliance **1** is in particular a gas stove or household gas stove. The household cooking appliance **1** can be a built-in appliance or a freestanding appliance. The household cooking appliance **1** comprises a number of gas burners **2**. There can be any given number of gas burners **2**. For example four gas burners **2** can be provided. Each gas burner **2** is assigned a gas control valve or gas regulation valve **3**, with the aid of which a fuel gas flow supplied to the respective gas burner **2** can be optionally switched on, switched off and can be regulated, in particular steplessly.

FIGS. **2** and **3** respectively show a schematic sectional view of a form of embodiment of a gas burner **2** for the household cooking appliance **1**. The gas burner **2** comprises a burner housing **4**. The burner housing **4** is preferably made of an aluminum or magnesium alloy. The burner housing **4** comprises a lower burner part **5**, which rests on a cooktop or top sheet **6**. The cooktop can also be referred to as the top sheet **6**. The top sheet **6** is for example a metal sheet or a glass ceramic sheet. All gas burners **2** of the household appliance **1** are fastened to the top sheet **6**. This means that a common top sheet **6** is allocated to all gas burners **2**.

The lower burner part **5** is embodied rotationally symmetrical to a central axis or an axis of symmetry M_2 of the gas burner **2**. A tubular mixing chamber **7** is provided centrally in the lower burner part **5**. The mixing chamber **7** is likewise embodied rotationally symmetrical to the central axis M_2. The mixing chamber **7** is configured to mix fuel gas

B, for example natural gas, with fresh air or primary air L. Laid on top of the lower burner part **5** is a burner cover **8**.

A gas distribution chamber **9** is formed between the burner cover **8** and the lower burner part **5** for evenly distributing a primary air/fuel gas mixture formed in the mixing chamber **7** to a plurality of gas outlet openings **10** provided on the edge of the burner cover **8**. There can be any number of gas outlet openings **10**. The gas outlet openings **10** are arranged distributed evenly around a circumference of the burner cover **8**. The burner cover **8** is likewise embodied rotationally symmetrical to the central axis M_2.

With the aid of the gas distribution chamber **9** the primary air/fuel gas mixture created in the mixing chamber **7** is able to be distributed evenly to the gas outlet openings **10**. In addition the mixing of the primary air L with the fuel gas B can be further improved in the gas distribution chamber **9**. This means that there can be a premixing of the fuel gas B and primary air L in the mixing chamber **7** and the full mixing can be continued in the gas distribution chamber **9**.

The burner housing **4** furthermore comprises a nozzle holder **11**. The nozzle holder **11** is arranged below the top sheet **6**. For example the top sheet **6** can be fixed by a clamp between the lower part of the burner **5** and the nozzle holder **11**. To this end a breakthrough can be provided in the top plate **6**. The nozzle holder **11** has an annular fastening section **12**, which is connected permanently to the lower part of the burner **5**. An outer thread can be provided for this purpose for example on the outside of the mixing chamber **7**, which is screwed into a corresponding inner thread of the fastening section **12**.

The nozzle holder **11** furthermore comprises a nozzle receiving section **13**, which is connected via a web section **14** in one piece to the fastening section **12**. In particular the fastening section **12**, the nozzle receiving section **13** and the web section **14** are embodied as one piece of material. The nozzle holder **11**, the lower part of the burner **5** and the burner cover **8** can for example be embodied as aluminum die cast components. This enables the gas burner **2** to be manufactured at low cost in large volumes.

The nozzle holder **11** furthermore comprises a fuel gas channel **15** provided in the nozzle receiving section **13** for supplying the fuel gas B to a gas nozzle **16** of the gas burner **2**. With the aid of the gas nozzle **16** the fuel gas B can be injected into the mixing chamber **7**. An annular, circumferential first primary air inlet **17** is provided between the gas nozzle **16** and the mixing chamber **7**. The gas nozzle **16** is arranged spaced apart from the lower edge **18** of the mixing chamber **7**. This means that the gas nozzle **16** is positioned entirely outside the mixing chamber **7**. During injection of the fuel gas B with the aid of the gas nozzle **16** into the mixing chamber **7**, primary air L is drawn in at the side via the first primary air inlet **17**. The gas nozzle **16** thus causes a Venturi effect.

A form of embodiment of the gas nozzle **16** is shown in FIGS. **4** and **5**. The gas nozzle **16** is likewise embodied rotationally symmetrical to the central axis M2. The gas nozzle **16** comprises a cylindrical base body **19**, which is preferably made of a metal material. In particular the base body **19** can be made of brass. The base body **19** has an optional chamfer **20** facing towards the mixing chamber **7**. The chamfer **20** can make an angle of 45° with the central axis M2 for example. The chamfer **20** makes it easier for the primary air L to flow past the gas nozzle **16** into the mixing chamber **7**.

The gas nozzle **16** further comprises a second primary air inlet **21** guided centrally through said nozzle. Primary air L is likewise drawn in through the second primary air inlet **21** and supplied to the mixing chamber **7**. The second primary air inlet **21** is a hole provided in the center of the base body **19**. The second primary air inlet **21** tapers in a direction of flow R of the primary air L at least once and subsequently widens out again in the direction of flow R. In particular the second primary air inlet **21** comprises a conical inlet section **22** tapering in the direction of flow R of the primary air L, a conical outlet section **23** widening out in the direction of flow R, which faces towards the mixing chamber **7**, and a cylindrical intermediate section **24** arranged between the inlet section **22** and the outlet section **23**.

The inlet section **22** tapering in a conical shape in the direction of flow R of the primary air L is to be understood as a cross-section or a cross-sectional surface of the inlet section **22** becoming smaller in the direction of flow R. The outlet section **23** widening out in a conical shape in the direction of flow R is to be understood as a cross-section or a cross-sectional surface respectively of the outlet section **23** becoming larger in the direction of flow R. The intermediate section **24** is preferably cylindrical with a circular basic surface.

The inlet section **22**, the outlet section **23** and the intermediate section **24** form an outer wall **25** of the second primary air inlet **21**. The second primary air inlet **21** can be embodied, as shown in FIGS. **2** and **3**, at least partly in the nozzle holder **11**. For example a drawing-in section **26** tapering in the direction of flow R of the primary air L is provided in the nozzle receiving section **13** of the nozzle holder **11**, which opens into a cylindrical supply section **27**. With the aid of the supply section **27** the primary air L is supplied to the gas nozzle **16**. The supply section **27** is arranged in this case between the inlet section **22** and the drawing-in section **26**.

The gas nozzle **16** furthermore has an annular fuel gas outlet opening **28**. Annular is to be understood as the fuel gas outlet opening **28** running completely around the central axis M_2. The fuel gas outlet opening **28** is in the shape of a slot. The fuel gas outlet opening **28** opens directly into the second primary air inlet **21**. In doing so the fuel gas outlet opening **28** breaks through the outer wall **25** of the second primary air inlet **21**.

Also provided in the base body **19** of the gas nozzle **16** is an annular fuel gas distribution channel **29** running completely around the central axis M_2 and embodied rotationally symmetrical to said axis, for even distribution of the fuel gas B. The fuel gas distribution channel **29** tapers in the direction of the fuel gas outlet opening **28**. This means that the fuel gas distribution channel **29** has a larger cross-section than the fuel gas outlet opening **28**. Provided between the fuel gas outlet opening **28** and the fuel gas distribution channel **29** is a connecting channel **30** curved in the shape of an arc.

The fuel gas outlet opening **28** opens into the second primary air inlet **21** immediately after the intermediate section **24** of the primary air inlet **21**. In particular the fuel gas outlet opening **28** opens into the second primary air inlet **21** between the intermediate section **24** and the outlet section **23**.

As FIGS. **2** and **3** show, the fuel gas channel **15** provided in the nozzle receiving section **13** comprises an annular fuel gas distribution channel **31** running around the supply section **27** and the drawing-in section **26**, with the aid of which the fuel gas B is supplied to the fuel gas distribution channel **29** of the gas nozzle **16**. To this end a connecting channel or a number of connecting channels **32** can be provided in the nozzle receiving section **13**. The connecting channels **32** can be embodied as holes.

The functionality of the gas burner will be explained below. In operation of the gas burner **2** fuel gas B is supplied to said burner via the fuel gas channel **15**. The fuel gas B flows through the fuel gas outlet opening **28** in an annular shape into the second primary air inlet **21**. Through this primary air L is drawn in via the drawing-in section **26** into the gas nozzle **16** and in particular into the second primary air inlet **21**. The fact that the second primary air inlet **21** tapers in the direction of flow R of the primary air L means that the primary air L is accelerated and still mixes in the gas nozzle **16** at least partly with the fuel gas B. On exit of the primary air/fuel gas mixture from the gas nozzle **16**, further primary air L is drawn into the mixing chamber **7** from the side via the first primary air inlet **17**. In the mixing chamber **7** there is a further full mixing of the fuel gas B with the primary air L.

By two primary air inlets **17**, **21** being provided, by comparison with known gas burners, an increased amount of primary air L can be drawn in. This also enables a larger amount of fuel gas B to be burned and thus the performance of the gas burner **2** to be enhanced by comparison with known gas burners. The premixing of the primary air L with the fuel gas B can already take place in the gas nozzle **16** in a very restricted space. This enables the gas burner **2** to be constructed lower by comparison with known gas burners. The combustion of the fuel gas B is improved since the mixing of the fuel gas B with the primary air L is more homogeneous. The output of emissions is reduced and the efficiency of the gas burner **2** is enhanced.

The invention claimed is:

1. A gas burner for a household appliance, said gas burner comprising:

a burner housing having a mixing chamber for mixing fuel gas with primary air,

a gas nozzle accommodated in the burner housing and configured to inject the fuel gas into the mixing chamber, and

an annular first primary air inlet provided between the gas nozzle and the mixing chamber for drawing in the primary air,

said gas nozzle having:

a second primary air inlet which is guided through the nozzle for drawing in the primary air, said second primary air inlet being configured in a direction of flow of the primary air through the second primary air inlet to taper at least once and to widen out again,

an annular fuel gas outlet opening which opens directly into the second primary air inlet,

an annular fuel gas distribution channel configured to taper in a direction of the annular fuel gas outlet opening, and

a connecting channel connecting the annular fuel gas distribution channel with the annular fuel gas outlet opening, the connecting channel being curved in a shape of an arc.

2. The gas burner of claim **1**, wherein the fuel gas outlet opening breaks through an outer wall of the second primary air inlet.

3. The gas burner of claim **1**, wherein the second primary air inlet includes an inlet section tapering conically in the direction of flow of the primary air, an outlet section widening out conically in the direction of flow of the primary air and facing towards the mixing chamber, and a cylindrical intermediate section arranged between the inlet section and the outlet section.

4. The gas burner of claim **3**, wherein the fuel gas outlet opening opens into the second primary air inlet between the intermediate section and the outlet section.

5. The gas burner of claim **1**, wherein the gas nozzle is configured rotationally symmetrical to a central axis of the gas burner, said second primary air inlet being configured rotationally symmetrical to the central axis.

6. The gas burner of claim **1**, wherein the burner housing includes a lower burner part which houses the mixing chamber, and a nozzle holder which is connected to the lower burner part and accommodates the gas nozzle.

7. The gas burner of claim **6**, wherein the nozzle holder includes a fuel gas channel for supplying the fuel gas to the gas nozzle.

8. The gas burner of claim **6**, wherein the second primary air inlet is configured at least in part in the nozzle holder.

9. A household appliance, comprising a gas burner, said gas burner comprising a burner housing having a mixing chamber for mixing fuel gas with primary air, a gas nozzle accommodated in the burner housing and configured to inject the fuel gas into the mixing chamber, and an annular first primary air inlet provided between the gas nozzle and the mixing chamber for drawing in the primary air, said gas nozzle having a second primary air inlet which is guided through the nozzle for drawing in the primary air, said second primary air inlet being configured in a direction of flow of the primary air through the second primary air inlet to taper at least once and to widen out again, said gas nozzle having: an annular fuel gas outlet opening which opens directly into the second primary air inlet, an annular fuel gas distribution channel configured to taper in a direction of the annular fuel gas outlet opening, and a connecting channel connecting the annular fuel gas distribution channel with the annular fuel gas outlet opening, the connecting channel being curved in a shape of an arc.

10. The household appliance of claim **9**, constructed in the form of a gas stove.

11. The household appliance of claim **9**, wherein the fuel gas outlet opening breaks through an outer wall of the second primary air inlet.

12. The household appliance of claim **9**, wherein the second primary air inlet includes an inlet section tapering conically in the direction of flow of the primary air, an outlet section widening out conically in the direction of flow of the primary air and facing towards the mixing chamber, and a cylindrical intermediate section arranged between the inlet section and the outlet section.

13. The household appliance of claim **12**, wherein the fuel gas outlet opening opens into the second primary air inlet between the intermediate section and the outlet section.

14. The household appliance of claim **9**, wherein the gas nozzle is configured rotationally symmetrical to a central axis of the gas burner, said second primary air inlet being configured rotationally symmetrical to the central axis.

15. The household appliance of claim **9**, wherein the burner housing includes a lower burner part which houses the mixing chamber, and a nozzle holder which is connected to the lower burner part and accommodates the gas nozzle, wherein the nozzle holder includes:

a drawing-in section tapering in the direction of flow of the primary air, and

a supply section in communication with the second primary air inlet of the gas nozzle, the supply section connecting the drawing-in section to the second primary air inlet of the gas nozzle.

16. The household appliance of claim **9**, further comprising:

a cooktop,

wherein a part of the burner housing is on the cooktop, and

wherein the second primary air inlet includes an inlet section tapering conically in the direction of flow of the primary air, an outlet section widening out conically in the direction of flow of the primary air, and a cylindrical intermediate section arranged between the inlet section and the outlet section and immediately before the outlet section, the outlet section facing towards the mixing chamber and opening directly into the annular first primary air inlet, wherein the annular fuel gas outlet opening opens into the second primary air inlet between the intermediate section and the outlet section and immediately before the outlet section.

17. A household appliance comprising:

a cooktop;

a gas burner having a burner housing at least partially disposed on the cooktop, wherein the burner housing includes:

a lower burner part having a mixing chamber for mixing fuel gas with primary air, and

a gas distribution chamber configured to distribute a primary air/fuel gas mixture formed in the mixing chamber to a plurality of gas outlet openings of the gas burner;

a nozzle holder below the cooktop;

a gas nozzle supported by the nozzle holder, the gas nozzle configured to inject the fuel gas into the mixing chamber for mixing the fuel gas with the primary air; and

an annular first primary air inlet provided between the gas nozzle and the mixing chamber for drawing in the primary air,

wherein the gas nozzle includes:

a second primary air inlet extending through a body of the gas nozzle for drawing in the primary air, said second primary air inlet being configured in a direction of flow of the primary air through the second primary air inlet to taper at least once and to widen out again,

an annular fuel gas outlet opening which opens directly into the second primary air inlet, and

an annular fuel gas distribution channel in communication with the annular fuel gas outlet opening, the annular fuel gas distribution channel configured to taper in a direction of the fuel gas outlet opening; and

wherein the nozzle holder includes:

a drawing-in section tapering in the direction of flow of the primary air,

a supply section in communication with the second primary air inlet of the gas nozzle, the supply section connecting the drawing-in section to the second primary air inlet of the gas nozzle,

a fuel gas channel for supplying the fuel gas to the gas nozzle, the fuel gas channel of the nozzle holder being in communication with the annular fuel gas distribution channel of the gas nozzle, and

a connecting channel connecting the annular fuel gas distribution channel with the annular fuel gas outlet opening, the connecting channel being curved in a shape of an arc.

18. The household appliance of claim **17**, wherein the supply section is a cylindrical supply section.

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